

Amendments to the Claims

1. (Currently Amended): A semiconductor integrated circuit comprising:  
a supply voltage line;  
a ground voltage line;  
a virtual ground voltage line;  
a logic circuit coupled to the supply voltage line and the virtual ground voltage line;  
at least one sleep transistor for controlling current flow to the logic circuit, the sleep transistor being coupled to the virtual ground voltage line and the ground voltage line; and  
a non-abrupt switching circuit for controlling ~~the rate of change of current through~~ the at least one sleep transistor to control the rate of change of the current flow to the logic circuit over a period of time.

2. (Original): The semiconductor integrated circuit as in claim 1, further comprising a plurality of sleep transistors, wherein the switching circuit includes a plurality of delay elements, each delay element corresponding to each sleep transistor.

3. (Original): The semiconductor integrated circuit as in claim 1, further comprising a plurality of sleep transistors, wherein the switching circuit is a shift register having a plurality of outputs corresponding to each of the sleep transistors.

4. (Original): The semiconductor integrated circuit as in claim 1, wherein the switching circuit is a pulse generator.

5. (Original): The semiconductor integrated circuit as in claim 4, comprising at least two sleep transistors connected in series and a discharge capacitor coupled at an intermediate node between the at least two sleep transistors, wherein the pulse generator sequentially controls the at least two sleep transistors.

6. (Original): The semiconductor integrated circuit as in claim 1, wherein the switching circuit includes a resistor and capacitor connected in parallel.

7. (Original): The semiconductor integrated circuit as in claim 1, wherein the switching circuit is a digital-to-analog converter.

8. (Original): The semiconductor integrated circuit as in claim 1, wherein the switching circuit is a current mirror.

9. (Original): In a semiconductor integrated circuit including a supply voltage line, a ground voltage line, a virtual ground voltage line, a logic circuit coupled to the supply voltage line and the virtual ground voltage line, a method for controlling current flow to the logic circuit during an active and standby mode, the method comprising the steps of:

providing a sleep transistor coupled to the virtual ground voltage line and the ground voltage line for controlling current flow to the logic circuit; and

controlling the sleep transistor over a period of time to non-abruptly set the logic circuit to the active mode.

10. (Original): The method of claim 9, wherein the controlling step is performed by a switching circuit.

11. (Original): The method of claim 10, wherein the semiconductor integrated circuit further comprising a plurality of sleep transistors, wherein the switching circuit includes a plurality of delay elements, each delay element corresponding to each sleep transistor.

12. (Original): The method of claim 10, wherein the semiconductor integrated circuit further comprising a plurality of sleep transistors, wherein the switching circuit is a shift register having a plurality of outputs corresponding to each of the sleep transistors.

13. (Original): The method as in claim 10, wherein the switching circuit is a pulse generator.

14. (Original): The method as in claim 13, wherein the semiconductor integrated circuit comprises at least two sleep transistors connected in series and a discharge capacitor coupled at an intermediate node between the at least two sleep transistors, wherein the pulse generator sequentially controls the at least two sleep transistors.

15. (Original): The method as in claim 10, wherein the switching circuit includes a resistor and capacitor connected in parallel.

16. (Original): The method as in claim 10, wherein the switching circuit is a digital-to-analog converter.

17. (Original): The method as in claim 10, wherein the switching circuit is a current mirror.